THE VETERINARY RECORD

A Weekly Journal for the Profession.

Edited by WILLIAM HUNTING, F.R.C.V.S.

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THE VETERINARY REPORT.

The report for the year 1900 has just been issued by the Board of Agriculture. The contents consist of statistical tables and reports by the Chief Veterinary Officer (Mr. Cope) and the Assistant Secretary (Major Tennant).

The opening paragraph of the Chief Veterinary Officer is as follows—"The most important event in connection with the duties of the Veterinary Department during the year 1900, from the stockowners point of view has undoubtedly been the re-introduction into the country of foot-and-mouth disease which occurred in the month of January and continued to break out sporadically at irregular intervals during the whole year." Mr. Cope gives an interesting history of the series of outbreaks which caused so much anxiety, and frankly admits that the department failed to trace the origin of the disease. Although the authorities did not detect the specific method of introduction of the disease they doubtless are right in their belief that it was brought from the Continent either by men or things which had been contaminated. Foot-and-mouth disease has been extremely rife for years past in France, Holland, and Belgium. The first appearance of disease in this country and nearly all the consequent outbreaks took place in the East Coast counties. How it was introduced we know not, but that mediate contagion from the Continent was the method there can be little doubt.

The measures adopted by the Board to check the spread of disease were successful, and although some adverse criticism was made at the time, we must now admit that good reasons existed for the adoption in some cases of slaughter and in others of isolation. The Board met this invasion of disease with prompt and severe action. They prohibited the movement of cattle, sheep and swine over large areas and success attended the effort. It seems strange that with all the experience gained from cattle plague and foot-and-mouth disease the Board cannot draw the necessary inferences in relation to swine-fever. Rapidly spreading diseases can only be controlled by restriction on movement.

Mr. Cope refers to the doubts which were expressed as to the correctness of the diagnosis, and gives facts which we think are conclusive as to the truth of the opinions arrived at by the veterinary officers.

Some space is devoted to the arrival of foreign animals suffering from foot-and-mouth disease. Over twenty cargoes arrived last year in London and Liverpool from Argentina with diseased animals among them. This no doubt represents a danger to our home stock, but one which may be too highly estimated. All these animals are landed for slaughter at the port and very efficient arrangements exist to prevent the escape of any disease. We believe no case is on record of contagious disease escaping through the lairs or slaughterhouses of either London or Liverpool. Just now it is well not to overvalue the danger or to use it as a bogey for the purpose of keeping out stock from the Argentine. That country is free from foot-and-mouth disease, except perhaps some districts as far from the ports of embarkation as St. Petersburg is from London. Our stringent laws are met by retaliatory regulations, and the consequence is that the sale of pedigree stock to Argentina is now stopped—a loss to us as well as to them.

Mr. Cope devotes some pages to a very instructive account of the nature and symptoms of foot-and-mouth disease, illustrated by a number of remarkably good photographs of diseased specimens. The report can be had for a shilling through any bookseller, and the photographs are worth double the money. Practitioners should avail themselves of the opportunity.

Pleuro-pneumonia is referred to only to say that the country has been free for two years.

Rabies is one of the diseases which the Board may refer to with pride. The regulations enforced have cleared the country, save a small district in Wales. It must have been with feelings of great gratification that the Chief Veterinary Officer wrote :—"And now for the first time during 51 years not a single human being died in the year 1899 from hydrophobia in England and Wales, and from the information I have again received from the Registrar-General I have reason to believe that no case was met with in the returns for 1900. The value of these results will be realised by examining the tables in the annual report of this Department for 1899, wherein it will be seen that in 1877 no fewer than 79 persons died from this terrible disease." Mr. Walter Long deserves credit for the courage with which he enforced the rabies regulations. Major Tennant was well informed about rabies and hence the success following his administrative efforts. If only he were as well informed about glanders and swine-fever we feel certain equal success would attend the action of the Board of Agriculture. We speak without knowledge, but we feel certain that the advice of the Veterinary Officers of the Board is not accepted on the two last mentioned diseases as it was on rabies.

On swine-fever Mr. Cope is silent, and we hardly know what conclusion to draw from this. Has he given all the advice he can and found it unaccepted, or does he despair of success?

Glanders we are told has increased, but nothing more definite is said. No indication of further action and no comment on the existing regulations which everyone knows are useless. It is not creditable that as many horses perish from glanders now as were lost twenty years ago. Since legislation was first framed to deal with glanders we have probably lost from that disease 100,000 horses—and no one moves.

CASES AND ARTICLES.

LACTATION IN A FOAL.

Having a very unusual and rather interesting case brought under my notice recently, I think it may amuse some of the readers of your valuable paper, as such cases don't come under every one's notice. I was called to attend this interesting little subject, which was a foal a day old, born on June 25th, which was suffering from congestion of its mammary glands, which where considerably swollen and hard. Having had these well rubbed milk began to flow freely on its own accord, and with a little help a pint was taken from it first time. As the glands continued active I ordered the bag to be relieved night and morning, taking a little less quantity each time, as I prognosed this would dry it up, which it did in about ten or twelve days. This did not affect the foal's health in any way, and what is most remarkable this young customer on the ninth day was as strongly in season as the dam herself, making a curious pair. As this to me is unique perhaps some of our learned friends can offer a solution of this curious and rather interesting condition.—I am, yours sincerely,

EDWARD PERCIVAL SMITH.

Beccles.

AN OBSERVATION FROM AMATEUR SURGERY.

A few months ago while inspecting a flock of Dorset horns before transmission to Canada, the shepherd casually directed my attention to one yearling ram which had been "horned" by a cow in the abdomen. The shepherd found the entrails and what I took to be from his description a lobe of the liver and part of of the rumen hanging from the wound, which was half-moon shaped and situated in the epigastrium. In his own parlance he washed the gut (laying the lamb on its back) with clean cold water, pushed them back, and sewed the wound up with a sack needle and twine. He then tied a piece of dirty old sacking round the abdomen, and left the rest to nature. The patient was much emaciated, as might be expected, but made in the end a complete recovery. I record this case because it demonstrated to my mind a few excellent truths. 1st., I might ask, are we not over zealous at times in the carrying out of our Listerian principles, forcing nature to the back-ground by our art. I mean the *excessive* use of our present day antiseptics have a tendency to lower the vitality of nature's repairing cells.

2nd. This case would tend to illustrate that the sheep is not very prone to shock. I must, however, say this latter remark does not agree with my experience of surgical cases upon the womb. I have operated on six ewes (Cæsarean section), with a result that two recovered and four died, 75 per cent. fatal. They were all favourable cases, and had not become exhausted by prolonged lalour, etc. I attributed the mortality (rightly or wrongly), to surgical shock, death in each case taking place from five to twelve hours.

3rd. The sheep is not particularly prone to traumatic peritonitis, as this case would suggest. The contamination of filth and dirt, and then the application of cold water to the sensitive peritoneum, points to considerable toleration.

4th. This is an excellent illustration of the great benefit a surgical case derives from healthy surroundings. Compare a stuffy old stable with bad drainage and ventilation, or a miserable cow-pen covered with filth from floor to ceiling, to an open field, free from all artificial contamination, and one cannot wonder at the favourable termination of such cases so situated and left to nature.

W. M. SCOTT, F.R.C.V.S.

ABSTRACTS FROM FOREIGN JOURNALS.

BOVINE MALARIA.—By G. GUGLIELMI.

The disease commonly known as Red Water has been described by various investigators under the names of epizootic hæmoglobinuria (Babes), Texas fever (Smith, Kilborne, Weisser, Maassen, Koch); hæmoglobinuria of Finland (Krogins, V. Hellens, Kossel); hæmatinuria (Sanfelice and Loi); bovine malaria in the Roman campagna (Celli and Santori); bovine malaria (Nicolle and Adil Bey); acute bovine malaria in Argentina (Lignières). The term "bovine malaria" was first used by Celli and Santori in 1897 in regard to the disease as manifested in the Roman Campagna, and which attracted their attention at the time they were investigating human malaria, owing to many symptoms analogous in the two forms.

In justice to our colleague, Prof. L. Buonsanti, who was then engaged in practice in the country, it should be stated that some twenty years before he had declared that red water was nothing more or less than the bovine form of malaria. Since 1881 G. Guglielmi, the veterinary officer of health in Castellanata, has paid special attention to the disease owing to the loss it causes to agriculturists, and the frequency with which it has been confounded with anthrax by those who have reported cases to him, the error having manifestly arisen from the enlargement of the spleen, commonly present in both diseases, and the want of microscopical investigation. It was found that red water and human malaria occurred most frequently side by side, and this tempted the investigator to use (1) quinine in the bovine disease with the best of results. These two incidents led him to suspect a close resemblance, if not identity, in the human and bovine diseases, which fact he first made public in 1888. In the district under his supervision, bovine malaria appeared in the aestivo autumnal season from July to October, extending a week or two longer in dry, warm seasons, thus conciding with the period most detrimental to man.

The districts most affected are marshy, and well adapted to the reproduction and development of *anopheles* – which, according to Grassi and Ross, is admittedly the transmitter of the disease to human-

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ity – and of *culicidae*, and as the cattle drink at the puddles so affected, it is not a stretch of the imagination to suspect a connection between the insect and bovine malaria.

The disease chiefly attacks (2) adult animals, working and fattening bullocks, sparing the young and milking cows. (3) Cattle reared in a locality seem to possess an amount of immunity, whereas those introduced into an affected spot, especially if reared in a high, dry locality, suffer very severely. Loss approaches 50 per cent., but is less where watchful care is exercised by owners, and suitable medicine administered early.

Smith and Kilborne, and other observers except Koch, speak of two clinical forms of bovine malaria; one, summer, acute; the other autumnal, sub-acute and milder, but it is probable that such a distinction is due merely to the number of parasites contained in the red corpusles.

Guglielmi observed the same symptoms (4) as those described by Celli; the disease begins with diarrhœa, the skin is hard and dry, the aspect weary and dejected, the animal leaves its companions, loses its appetite, and the eyelids wrinkle and tears flow from one or both eyes generally, the muzzle is dry, the mucous membranes pale or yellowish, the mouth hot and slavery, the teeth are ground continuously, rumination is gradually and completely suspended. Temperature raised and unequally distributed, horns and ears cold, pulse small and frequent, about 80, breathing accelerated and becomes shallow.

The urine takes on a peculiar frothy or soapsud character which persists throughout the course of the disease, it passes from a pinkish shade to red of varying depths, to that of wine lees or stout.

Wasting is general and so acute that often an animal is scarcely recognisable from day to day. As the disease progresses, tottering and swaying of the hind quarters with marked weakness ensues, and in severe cases the animal lies prostrate. Death ensues a few days after the red water appears, and is usually preceded by a fall of the temperature and convulsive shivering.

In several cases it has been noticed that there has been strong rigor of the muscles of the shoulders, flanks and quarters, followed by a rise of temperature, strongly resembling the shiver which precurses an attack of ague in man.

The pathological lesions revealed upon post-mortem examinations affect the blood, spleen, and kidneys especially. An average case may be described as follows. Subcutaneous suffusion in the extremities, head, neck, abdomen and loins. Muscle tissue fair, lungs healthy, pericardium filled with sero-sanguinolent fluid. Heart spotted with ecchymoses, especially the left auricle; diffuse ecchymoses on the endocardium of the left ventricle, that of the right healthy; but the heart lesions are not by any means constant. Blood dark and fluid, arterial light and watery. Stomach and intestines healthy, mesentery hyperæmic and ecchymosed. (5) Liver hyperæmic; spleen enlarged in volume and margins rounded, pronounced hyperæmia of the capsular vessels, interstitial tissue thickened and prominent, pulp dark red and somewhat softened. The capsule of the kidneys infiltrated with exuded blood and easily detachable, the kidneys reddish brown, friable, and great hyperæmia of the vessels of the cortex. The bladder somewhat stained by the urine with slight hyperæmia of the mucous and serous coats and punctiform petechiæ.

The lesions of the vascular system vary very much in every case.

Microscopical examination of the blood in a fresh preparation taken from one of the peripheral vessels of the living animal, or from the heart or spleen after death, reveals in the red corpuscles the parasite described by Smith and Kilborne, and by Celli and Santori, a mobile body with a sideway movement, which is small, refractive, and well defined in the red corpuscle (Fig. 1-5; 8-11). And a mobile body with an amoeboid movement, somewhat larger and clearer than the other (Fig. 12-25.) These small bodies appear in forms annular, ovoid, rod-like, club-form, spindle and pear-shaped. These variations are really due to the amoeboid movement, as they rarely occur in stained specimens, or in blood taken from a dead animal, their form being then generally spherical. Occasionally they appear in pairs or fours (pirosoma or piro plasma bigeminum of Smith and Kilborne), which may also be seen reuniting as in Fig. 3; their size is about 1-4μ., in some there is a pigment granule, or less frequently two (Fig. 6-7.) This central pigment granule is easily seen in a simple dry cover glass preparation if the field is lighted obliquely, as they appear a light violet tint.

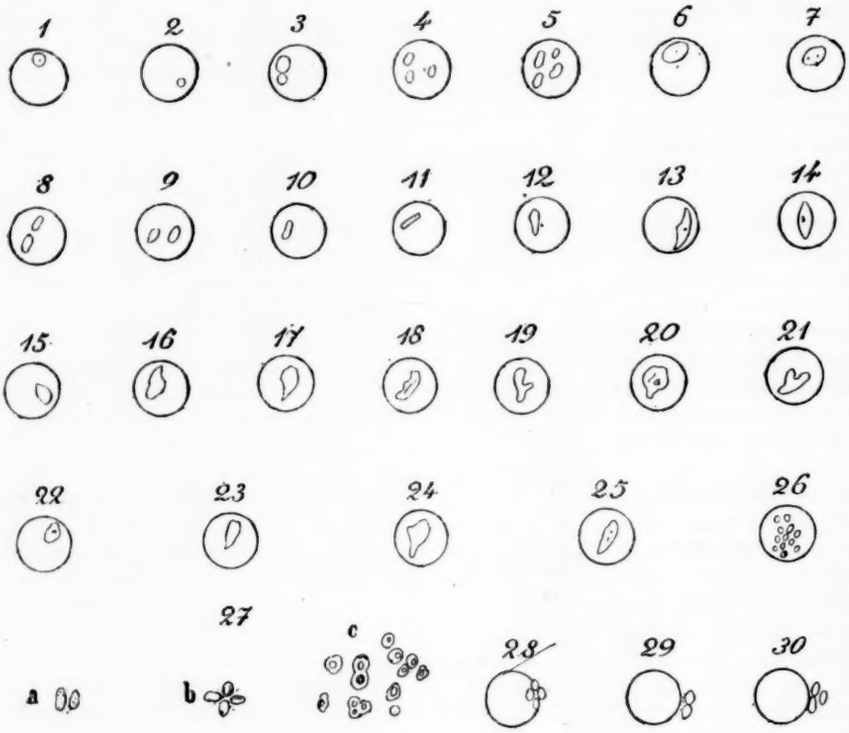
The descriptions of Celli and Santori agree with those of Koch in East Africa. The immature forms described by Smith and Kilborne are not corroborated by Italian investigators, but the rod-shaped body with rounded ends mentioned by Koch has been observed (Fig. 10.)

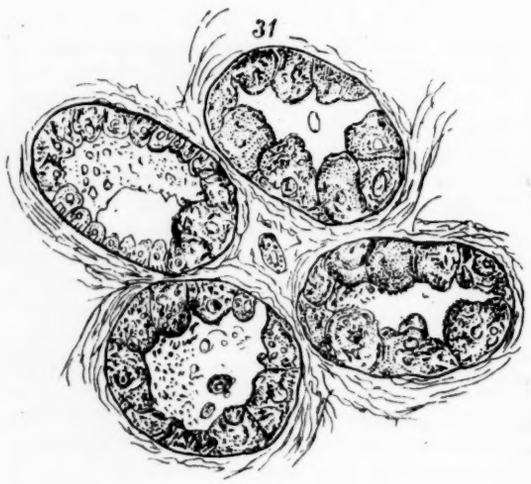
In preparations stained after the method of Gosio (6) the bodies appear blue, some faint, some dark. If Romanowski's (7) method is adopted, the peripheral zone of the parasite stains darkly, the central part remaining clear; sometimes the color is red instead of blue, and where there are two bodies, one may be one color and one another; Celli is inclined to consider the blue ones as female and the red as male.

In cytological structure the parasite appeared to be an ectoplasm or cytoplasm with a nucleus.

Guglielmi has not noticed segmentation occurring in the intracorpuscular bodies but in preparation from the spleen he has noticed as many as twelve bodies in a corpuscle (fig. 26); he has not observed them in a free state, and hesitates to pronounce them spores or a condition due to alteration in the structure of the red corpuscle. Celli has noticed a similar phenomenon, but it is rare. In its free existence the parasite shows multiplication by division and scission in three and four (fig. 27) and may be seen leaving the corpuscle in this condition (fig. 28 30.)

In its intra-corpuscular existence the pirosoma sporulates, and this method of reproduction is in concord with the rapid course of the disease and the quick break-up of the corpuscles, the spores gaining access to various parts of the body by the general circulation, and thus causing the intermittent febrile condition characteristic of the disease in man but not so marked in bovines.





DESCRIPTION OF PLATE.

Fig. 1—25. Large and small forms of *Pirosoma* inside red corpuscle.

Fig. 22—24. Shew amœboid movements of a parasite in a corpuscle from the muscle tissue of the heart.

Fig. 26. Numerous granules in a corpuscle from the spleen, probably sporulation of parasite.

Fig. 27—30. Forms undergoing scission ; free, partly intra-corpuscular, and attached to a corpuscle.

Fig. 31. Urinary canaliculi, tumefaction of epithelium and partial obstruction of lumen by detritus and granules of hæmoglobin.

Fig. 32. Forms of parasites found in blood taken from abdomen of a tick—(*a*) parasites ; (*b*) pigment granules ; (*c*) ova of tick.

According to Koch the parasite has a spherical appearance in tissue hardened and preserved in alcohol. Guglielmi has failed to find it and surmises that the preservative fluid has shrivelled up the parasites entirely.

In sections of the kidney the epithelium of the canaliculi is tumified, and in the cells and lumen of the tube there are granules of detritus mixed with granules of hæmoglobin and necrotic matter of a brown opaque character.

The hepatic cells show fatty degeneration. In preparations of blood obtained from the abdomen of a tick found on an infested ox the parasite was found in large quantities mixed with pigment of a yellowish brown shade, and starch granules and undamaged red corpuscles (fig. 32).

The parasite of bovine malaria is a sporozoon closely related to the malaria of frogs and reptiles, birds and man, and approximates most nearly the form of human malaria known as æstivo autumnal or tropical.

The researches of Smith, Kilborne, and Koch have proved that the parasite develops during a portion of its existence in the body of the tick and so becomes actively infective to healthy cattle. Has it not also an existence analogous to the parasite of man and birds? Does it not also pass part of its life cycle in the intestine of a midge, as the flagellæ and spermoids of McCallum and Ross and Grassi and Dionisi, as does the parasite of human malaria in the intestine of *anopheles*. So it may be asked is not the genus (8) Culex a host for the bovine parasites.

Bovine malaria is not transmissible to other animals, and experiments on rabbits have always proved negative. The evidence is strong that redwater of the agriculturalist is malaria of the scientist, the disease is a parasitical anæ-

mia, acute, febrile, accompanied by destruction of the red blood corpuscles and hæmoglobinuria due to an alteration of the kidney structure, the hæmoglobinuria is constant and varies only in degree; hæmoglobin and hæmatin are always eliminated whatever the cause of the destruction of the red corpuscles may be.

Hæmamæba immaculata of Marchiafava and Celli is held by Grassi to be indistinguishable from *pirosoma*, the minute differences of pigmentation and form being due in his opinion to the different physical conditions under which they are found. In bovine malaria no one has so far demonstrated the presence of a pyrogenic toxin, but it is difficult to account for the passive hyperæmia localised in the distal parts of the body except by accepting the theory that it is the result of embolism caused by the detritus of red corpuscles resulting from the proliferation of the parasites. The points of analogy between bovine redwater and human malaria appear to be very clear, viz., (*a*) the etiological analogy in the parasitic origin; (*b*) the pathogenic analogy in organic lesions; (*c*) the analogy in means of spreading—the arthropod diptera, *anopheles* in man, and the tick as demonstrated in America and Roumania in cattle; and as may fairly be deduced from clinical observation the *Culex* midges also, for Grassi and Feleti have well established the fact that culex pipiens is the host of bird malaria, and Nosotti and others have remarked on the absence of ticks in many outbreaks of redwater or hæmoglobinuria, but have been struck by the constant presence of culicidæ.—*La Clinica Vétérinaria.*

Translator's Notes.

(1) In 1892 the writer, out of sheer laziness, dispensed a mixture containing quinine for a case of red-water, as it was to hand and something had to be sent, and in a short time quite a local demand had arisen for this particular mixture owing to its efficacy, so gradually the other ingredients, iron and nux. vom. were eliminated and quinine was found to be the drug which had a good effect; this led the writer to believe that the red-water of the West of England was of a malarial character, a theory which later observation supported by testimony such as Guglielmi's he believes to be uncontrovertible.

(2) The writer has always found that adult males suffer very severely, the death rate in bulls and steers being at least twice as great as in females.

(3) In some parts of the West of England a new importation is expected to have red-water within a few days of arriving in an affected area, which areas are sometimes sharply defined, especially where farms are co-existent and drainage is well attended to on the one and neglected on the other.

(4) The symptoms and post-mortem appearances described by Guglielmi strike the writer as being one of the most lucid descriptions of red-water that he has ever read.

(5) The liver, however, in the writer's experience has generally undergone fatty degeneration to a greater extent than the author describes, although he alludes to this when describing the microscopical appearance.

(6) Gosio's stain:—Borax, grm. 5; methyl. blue, grm. 3; dist. water, grm. 100.

(7) Romanowski's method:

(*a*) Methyl. azure; watery solution standing at 25-30° for three days.

(*b*) Eosin A. G. and B. (M. Lucino), watery solution 1 per cent.

Take (*a*) 1-3 parts, and (*b*) 2-5 parts, mix.—Celli.

(8) The writer is strongly inclined to believe from clinical observation that the *culicidæ* are the intermediate hosts of the parasite in bovine malaria and *anopheles* in equines. As experience in England has always shown the presence in great numbers of the *culex* family in districts known as red-water spots, and in Asia where red-water has been a prominent symptom in equine malaria the *anopheles* has predominated.

The writer would be glad to hear of the experience of veterinary surgeons residing in parts of England affected by red-water in cattle as well as ague in man, if the two exist side by side as suggested by Guglielmi.

British Congress on Tuberculosis.

(Section IV. Friday, July 26.)

[abstract.]

LEGISLATION SUGGESTED FOR CONTROLLING AND ERADICATING TUBERCULOSIS IN ANIMALS.

By Professor Duncan McEachran,
McGill University, Canada.

It was in 1882 that Koch first communicated the results of his investigations of the etiology of Tuberculosis before the Physiological Society of Berlin, followed by further communications later. The knowledge of its transmissibility being due to a specific bacillus led to much investigation and experimentation. The reports and contributions to the literature of Tuberculosis have for many years filled our journals and bookshelves to such an extent that no excuse is left for ignorance concerning the subject on the part of those interested in it.

Until Koch demonstrated that tuberculosis was due to the invasion of an organism, the Tubercle Bacillus, communicated either directly from an infected person or animal or by intermediate sources of infection, especially by buildings, pathologists were content to attribute its existence and extension to heredity. When however its real nature and its pronounced contagious character came to be known, both medical and veterinary practitioners stood aghast in contemplation of the thousand and one blunders which crowded their memories consequent on want of this knowledge.

The infection of healthy animals we know takes place readily from cohabitation, the bacilli gaining entrance by the respiratory organs in most cases but by the digestive tract in many, especially in calves when suckled by diseased mothers, and calves, pigs, and other animals fed on milk, or on dairy bye-products containing living bacilli. In pigs when allowed to eat tuberculous matter found in carcases and slaughter-house refuse given them as food; probably, too, in rare instances, from eating the flesh of tuberculous animals. It is to the buildings themselves, however, we must look for the chief source of infection, and to neglect of disinfection and sanitation

must we attribute in a great measure the continuance of the disease and reinfections with which we are familiar.

I have seen tuberculosis prevalent in ranche cattle, few of which were ever under a roof, ranging on the foothills of the Rocky Mountains in Montana. I have known a valuable herd of Polled Angus which was brought into the Peace River country in the far North-West of Canada, which proved to be tuberculous and was ultimately exterminated in consequence. In these and other instances which might be referred to, pure air and sunshine certainly prevailed, yet it did not prevent infection taking place when they were congregated in corrals, bunched together during fly-time, or in infected sheds in winter.

Heredity.

To eliminate heredity entirely from the causative faculty would be an error; but we are safe in saying that it plays a very unimportant part in its extension. The rarity of the disease being found in calves at birth in all countries has been noticed by Professors Bang, Siedamgrotzky and others, and the immense success attending the rearing of calves from tuberculous cows by Bang's system in Denmark and other countries, including Canada, proves conclusively that it is not hereditary in the same sense as gout or insanity are known to be transmitted from parent to progeny.

While intra-uterine infection from a diseased mother is occasionally seen, congenital tuberculosis plays a very unimportant part in the continuance and extension of the disease, compared with the many ways in which the essential factor in its production, viz: tubercle bacillus, gains an entrance to the animal body; in other words, tuberculosis is a contagious disease, not an hereditary one as was supposed.

The Diagnosis of Tuberculosis.

The clinical diagnosis of tuberculosis even by the most expert clinical examiner, except in advanced cases, is always unreliable, as tubercule may exist in such a stage as would be impossible of diagnosis by this means.

The Tuberculin Test.

The discovery by Koch, in 1890, of the production of fever, indicated by a rise in temperature, in tuberculous animals into which he injected a sterilised glycerine extract of pure cultures of tubercle bacilli, while it produced no effect whatever when the animals were free from that disease, furnished us with a simple but very reliable diagnostic agent.

The effects produced by this discovery on the commercial aspect of the business of the dairyman and cattle-breeder have been in many instances most disastrous. Herds which were supposed to be free from disease were discovered by this test to be tuberculous; dairy businesses have been ruined, justly so we must admit, for no man has a right to sell milk, or dairy products manufactured from them, when derived from diseased cows any more than a breeder of pure-bred stock has to sell animals suffering from a contagious disease from which recovery is the exception.

In Canada during the past year, from 1st November to 1st November, there were 17,785 head of dairy cattle tested officially by voluntary application of the owners, on condition that the entire herd be tested and all reacting animals quarantined for life, without compensation. Of this number only 358 reacted, or about two per cent.

What opposition we met with came from breeders who had suspicious herds, or herds which, by private testing, were known to be diseased; it came chiefly from men who combined importing for speculative purposes with breeding.

In some of these cases the importers, we have reason to believe, were not ignorant of the cattle being tuberculous; in others we fear the man who paid the money was a victim of imposition or gross neglect of his interests on the part of his agent.

Personally, I believe with Professor Nocard that tuberculin does not lie; how is it then that so many tuberculous cattle come to us in America accompanied by charts and certificates of health?

If the importer is a party to fraud, then he should be severely dealt with; if negligent, then he should pay the penalty of his negligence, for he has no right to import animals suffering from a contagious disease.

Is it possible that agents or middlemen deal in suspected cattle—which are bought knowingly by the one class of importer, or foisted on to the other? Is the professional man, employed to test for export, imposed on by previous tuberculination nullifying, or at least rendering uncertain, his honestly applied test? Are all such men above suspicion? My own experience in a few instances in Canada compels me to say no, or is it the tuberculin that is at fault?

When we meet with reactions varying from forty to ninety per cent. in cattle certified as healthy, as is found in both Canadian and United States' importations, such questions force themselves on us, and are sufficient explanation of why both Governments have each decided to keep a professional man in Britain on whose charts alone will cattle be allowed to pass through our quarantines without re-testing.

Reaction.

We are often asked by importers and testers in Britain what reaction we consider indicates tuberculosis. Experience had taught us that it is not the extent of the rise in temperature so much as its character taken in conjunction with attendant circumstances. Ordinarily a rise of 2° F. above the highest normal is due to tubercle being present; but the single occurrence during the day of such a rise may be due to some accidental circumstance. A typical reaction is arched, the maximum temperature occurring the 17th hour, falling to normal about the 24th hour or sooner in many cases. The character of the reaction may be altered by copious draughts of cold water, or a lowering of the body temperature from any cause; so also does the raising of the body heat from such causes as flies, atmospheric heat and scarcity of water, all of which produce variations in the reactions. In addition to which might be mentioned applying the test when the animal is excited from any cause, such as driving cows from the field to the stable, railroad journeys, steamboat conveyance, change of climate, change of byre, bulling, stage of the disease (in advanced cases often no reaction follows), and what to us in most important, the uncertainty of reactions for months after injection of tuberculin.

As I said above, tuberculin can be almost absolutely relied upon if properly used, there is no other diagnostic agent to be compared with it, yet it is capable of much abuse, and is often improperly used.

Methods Adopted by Different Countries.

Some years ago, in Massachusetts, compulsory testing was tried, but was found to be impracticable, and met with strong opposition.

Belgium adopted somewhat similar methods with similar results. It had to be given up, and at present the killing is restricted to animals in which the diagnosis can be made by clinical examination.

In Switzerland free testing is practised. All clinically diseased are slaughtered; reacting animals are marked by cutting out a triangular portion of the ear.

In France, immediate slaughter of clinically diseased animals, and slaughter within one year of reacting ones.

In Germany tuberculin is furnished free, and monetary aid is given to those who adopt the Danish system,

and otherwise resort to prophylactic measures for its eradication. In most of the German States it is required to sterilize the creamery and dairy products and their bye-products, skin and butter-milk.

In Denmark free testing is done on voluntary application. Clinically diseased are killed, the others are divided into healthy and reacting. These are separated in different buildings, or partitions are used to divide the byres; in one section the healthy, in the other the diseased, are placed. The reacting ones are bred from; the calves are reared on milk from healthy cows or pasteurized milk, or milk which has been heated sufficiently to kill the tubercle bacilli. The success of this plan has been fully demonstrated by Prof. Bang.

In America—both the United States and Canada—for a number of years, all cattle imported from Europe were tested in the quarantines. A few years ago importers urged that the practice too often led them into serious losses—the value of the diseased animals as well as freight and other expenses incurred—and discouraged, as a consequence, importation generally; and to meet the views of importers the Canadian Minister of Agriculture ordered that a number of veterinarians throughout Britain be selected, whose charts of test would be accepted without testing again in Canadian quarantines. This plan worked very badly, as numbers of diseased cattle were imported, several valuable herds being found clinically diseased, and were slaughtered.

The United States had similar experiences with British charts of testing. This is regrettable, as both countries acknowledge the great results obtained by British breeders in producing excellent cattle, knowing as they do that on no spot on earth can cattle of equal merit be produced There is something in the soil and the air of the sea-girt isle so favourable to the production of high-class bovines that breeders abroad must come to Britain for fresh blood to keep up their herds, otherwise marked degeneration is soon apparent. For this reason each country, rather than prohibit importation altogether, has appointed a veterinarian to do the testing, and on their charts alone cattle are admitted to both countries without being tested in quarantine.

In Canada testing is done at Government expense, when voluntary application is made for testing the whole herd, and reacting animals are quarantined for life. Bang's system is coming much into practice in Canada. In a few herds it has been successful in a remarkable degree. No compulsory measures have been tried. Tuberculosis exists in Canada to a limited extent only.

How the Disease is Usually Introduced into a Herd, and How it Extends in it.

A tuberculous bull is probably the most active agent in spreading this disease, both by cohabitation and sexual connection.

Farmers cannot be over-cautious in buying a bull or in having cows served by one till he has been subjected to the tuberculin test and found free from the disease.

Nothing should induce a breeder to allow contact with his healthy cattle by a bull till he has every assurance that he is free from tuberculosis.

Tuberculous animals of any kind should be prevented from coming in contact with the cattle.

Tuberculous Attendants.

Tuberculous attendants—men or women suffering from pulmonary consumption—should on no account be allowed to feed, milk, or have anything to do with cattle or pigs.

The intercommunicability of the disease from animals to man, and from man to animals, is an established fact no longer open to discussion.

How to Prevent its Introduction to a Herd.

See that your animals to begin with are free from the disease.

Never bring any animal into the byre till you have ascertained beyond a doubt that it is healthy.

Keep your own bull. Your neighbour may be obliging, but if careless about the health of his stock, you may suffer irreparable injury by accepting even the free use of his bull should the animal happen to be tuberculous.

Conversely, if you have a bull, be exceedingly careful to see that no tuberculous cows are brought to him for service.

Never allow a consumptive person to have anything to do with you cattle; make no mistake about this.

Your byres must be well lighted—almost as light as outdoors; disease germs are killed by sunlight.

Pure air and plenty of it is essential to health. This can only be provided by sufficient space. Let your cow stable be roomy.

Drainage is essential to the purity of the air. Without proper and efficient drainage the air must become contaminated by the emanations from the droppings and urine of the cattle as well as by the decomposing vegetable matters with which they are mixed.

Drain your buildings, and do it thoroughly.

The ventilation is all-important. By properly arranged ventilators the impure air is removed and replaced by pure. The oxygen of the air is constantly being consumed in the process of breathing, and unless it is replaced it becomes unfit to sustain animal life. The constant change of the air in buildings inhabited by animals is absolutely necessary to preserve health.

Cattle Standing Head to Head Objectionable.

The common plan of arranging the byre, so as to save labour in feeding, by having an alleyway with the heads of the cattle opposite each other is objectionable from a health standpoint, as it exposes animals opposite tuberculous cattle much more to the contagion than when they are placed with their heads to the wall. They may be easier fed the former way, but they are easier cleaned the latter, and it has a decided sanitary advantage should contagious disease exist. Running water in troughs placed in front of the cattle is objectionable if tuberculosis is present, as by this means the germs may be carried to the whole herd.

How to Deal with a Diseased Herd.

When tuberculosis is discovered in a herd, immediately remove the diseased ones from the healthy to an isolated stable, or a part of the byre may be partitioned off by close boards as far as possible from the rest of the herd.

In the case of low-priced cattle the owner will best serve his own intesests by slaughtering them at once. When they are especially valuable and in calf, the experiments of Professor Bang and others show that the calf may be saved by removing it as soon as born, and before the cow has licked it, or it has been suckled by its diseased mother, and by placing it in an uninfected building and feeding it on milk from tested cows it will in all probability grow up free from tuberculosis. The herd should be tested every six months, and those which react likewise removed till all trace of it disappears.

Disinfection of Premises.

Most careful and complete disinfection of buildings and yards in which diseased cattle have been kept should be employed to rid them of disease germs. In doing this, before sweeping, sprinkle the floors and walls thoroughly with water to prevent dust rising, removing drinking troughs, feed-boxes, and stall divisions. The floors must be specially scrubbed, the

walls, ceilings, and partitions should be carefully washed, and all freely sprayed with a disinfectant solution, such as carbolic acid, one pint of crude acid to four gallons of water, or lime-wash. It may be applied by a whitewash brush or a spraying pump, care being taken to see that every corner, crack, and joint is thoroughly penetrated by it. The cleansing and disinfection should extend to drinking troughs and fences of the barn-yard to make disinfection complete.

Disposal of Tuberculous Carcases.

Should the disease be local, as is frequently the case, being confined to one or more glands, the flesh can be used with as food impunity. Infection from flesh is an extremely rare occurrence, and most unlikely to occur if it has been thoroughly cooked. This can be most relied on when it is cooked in the minced form ; deep-seated portions of large roasts may not be exposed to sufficient heat to kill the bacilli.

When on post-mortem examination the disease is found to be generalised, the carcase should be put into the rendering vat ; the diseased viscera and tubercular masses should be burned or buried deeply in lime. No restriction is necessary on the sale and removal of hides, horns, hoofs, or hair.

Insurance.

At the Seventh International Veterinary Congress, held at Baden-Baden two years ago, Professor Siedamgrotzky suggested a system of insurance which, if it could be carried out, would be a common-sense way of lessening individual losses consequent on eradication by slaughter of clinically diseased and reacting animals. This is, however, surrounded by many practical difficulties, yet it is well worthy of the consideration of this Congress. An effort should be made to provide an indemnity fund by this or some other way, the public purse contributing a liberal share ; otherwise, I fear the progress made in eradication will be slow.

In the State of Illinois, United States of America, indemnity is paid by the State on a plan which is worthy of imitation. A maximum value is fixed at, say, £15. Diseased cattle are classified as follows after being slaughtered :—

		Indemnity.
Class A, in which no lesions are found		full appraised value.
„ B, in incipient stage	75 per cent.	„
„ C, infected for 1 year	50 „	„
„ D, „ 2 years	35 „	„
„ E, „ 3 years	25 „	„
„ F, „ over 3 years	15 „	„

Should the proceeds of the sale of the carcase exceed the percentage valuation, the owner is paid the full amount so received.

Suggested Legislation.

No legislation will accomplish the end in view unless the measures are such that the public are in sympathy with them rather than antagonistic to them.

I. Tuberculosis should be included in the list of contagious diseases.

(*a*) Tuberculous animals should consequently come under the provisions of the Animals Contagious Diseases Act ; but the local authorities should have power to allow the sale and movement of such parts of the carcases as are known not to carry contagion, such as hides, hoofs, horns, and hair, thus preventing unnecessary loss.

II. All foreign animals admitted for breeding or dairy purposes should be tested by the tuberculin test. Tuberculous animals should be prohibited from entering.

III. Tuberculin should be controlled, and none but qualified veterinarians be allowed to use it ; and all reacting animals should be reported, marked, and quarantined.

IV. All animals showing clinical symptoms of tuberculosis, especially disease of the udder, lungs, uterus, or bowels, should be killed at once, and all scrub and grade animals reacting should be killed within six months. Pure-bred cattle may be bred from under Bang's system, in quarantine for life.

V. All testing, other than imported animals, should be by voluntary application for a test of the entire herd, and the expense should be borne by the State. A reaction of 2° to be understood to indicate tuberculosis, 1½ as suspicious. Suspicious animals to be quarantined and re-tested in three months, unless clinical symptoms develop, when they would be at once condemned. The Government to have the right to order re-test when considered necessary.

VI. Disinfection of premises should be ordered by special regulations, the carrying out of which will be superintended by Government officials.

Mr. W. Duthie, of Aberdeen, who opened the discussion, said that his colleagues and himself from the north were present to ask for legislation in no selfish or narrow spirit but on important grounds of the public good. He went on to say that, having regard to the severe weather in Aberdeenshire at times, they did practice the open air treatment for their cattle as much as possible. He thought too much had been made of tuberculosis in cattle, and condemned the seizure and destruction of carcases when the disease was present probabiy only to the extent of covering a penny piece.

Professor Nocard, who spoke in French and whose speech was interpreted by Colonel Nunn, remarked that the declaration of Dr. Koch, as to the immunity of man from bovine tuberculosis, was one of the highest importance both from the agricultural and veterinary standpoint. Into this subject he did not further enter. He arrived at the conclusion that tuberculosis in bovine animals was one of the maladies which caused the greatest losses to agriculturists in all countries. Everywhere the malady was to be found and everywhere it constituted a danger to the prosperity of agriculture and to the public health. Contagion being the sole cause of the progress of tuberculosis, it was necessary to adopt legislative measures imposing (1) complete separation of diseased from healthy animals ; (2) the slaughter as quickly as possible of sick animals presenting clinical signs of tuberculosis, especially of cows suffering from tubercular mammitis ; (3) the prohibition of the sale of any diseased animal otherwise than for slaughter in the public interest ; (4) the sterilisation of all the products of cattle at the butter or cheese factories.

Professor Thomassen, of Utrecht Veterinary School, who also spoke in French, Colonel Nunn acting as interpreter, mentioned four cases in which he had inoculated animals with cultures of tuberculosis from human beings and he seemed to differ from the statement of Dr. Koch. He mentioned, too, that the manufacture of tuberculin in Holland was to be controlled by the State. Its use was not to be free. Animals clinically affected with tuberculosis were to be destroyed and animals reacting to tuberculin were to be segregated. The importation of animals affected with tuberculosis was prohibited in Holland.

Vet.-Colonel Nunn said that, apart from the question of communication to human beings, all admitted that it was desirable to eradicate tuberculosis. Speaking as a barrister as well as a veterinary surgeon, he was of opinion that existing law gave them ample parliamentary authority and that their duty was to educate the public up to the point that not legislative but executive power was the thing needed. (Hear, hear.)

Professor EDGAR said that the veterinary profession had been urging the inclusion of tuberculosis in the Contagious Diseases Animals' Act for twenty years in order that some suppressive action might be taken. The obstacle in the way of veterinary surgeons diagnosing the disease had been removed by the possession of tuberculin. What was now required were some legislative steps. Within thirty years from 30 to 40 per cent of the cattle of this country was affected by tuberculosis. ("No.") Restrictive measures to be effective must, he said, be universal and uniform in their operation. "Shall" must be substituted for "may" in their enactments.

Mr. W. COOPER: Do I understand the Professor to say that from 30 to 40 per cent. of the cattle of this country are tuberculous?

Prof. EDGAR: I said we learn on fairly good authority that from 30 to 40 per cent. are tuberculous.

Mr. COOPER: I never heard of such authority. I have heard that there were 30 per cent. of the cows of this country tuberculous but not of the cattle.

Professor DEWAR said that there was a great deal of exaggeration abroad as to the expense likely to be incurred by any individual breeder who, on his own initiative, started to clear his herd of tuberculosis by the use of tuberculin. He adduced details of actual experiments to show that not only was the cost inconsiderable but that the balance of advantage was greatly on the side of the owner. There was, he said, little use for the veterinary surgeon in a herd thoroughly tested; there were fewer abortions, fewer indigestions—less disease of all kind.

Mr. W. HUNTING said he intended to confine the few remarks he proposed to make to the subject of legislation for tuberculosis. At present, it was said, they had some legislation. There was some legislation against tuberculosis, it was true. Very little. Such as it was was limited wholly to the protection of the human subject against infected meat and milk. Anybody who read the reports of medical officers of health, who instituted prosecutions that failed, would realise that the whole thing was an absolute farce. (Hear, hear.) When you had discovered tubercle bacilli in milk, you had to examine it with a microscope and you generally found nothing. Then you inoculated guinea pigs with it and, in about a month, you discovered that there was a tuberculous udder in the shed. By that time forty children might have been poisoned. Until the cow was detected you could do nothing. Then you found the cow was gone—it had probably disappeared into the next shed or town. How a Government could possibly devise and a parliament pass such nonsense as this, he did not know. The only apology he could think of was that Mr. Chaplin was the head of the Department at the time. (Laughter). There was supposed to be some protective legislation against tuberculous meat, and we employed veterinary inspectors at some of the larger abattoirs. Well, it was a very remarkable thing that there were butchers so conservative, who had got so into the habit of sending tuberculous cows to the market, that they continued to send them for a year or a year and a half after the veterinary surgeons at the abattoirs seized all beasts that were sent there. After the market, the cows went into a private shed. Well, about half the meat consumed was probably thus inspected, and the other half was not inspected at all. It was not likely that when a man had lost cow after cow through sending to an abattoir he would send there again. Not at all. He had a friend and the infected animals were killed in a back shed, and eaten as before. ("No.") But he knew this was the fact.

Mr. MORGAN HOPKINS: I think Mr. Hunting should give us the names.

Mr. HUNTING: I dare say I could do that.

The CHAIRMAN: I think this is a waste of time.

Mr. MORGAN HOPKINS: I think when a charge of this kind is preferred, it should either be withdrawn or substantiated.

Mr. HUNTING (continuing) instanced a case wherein tuberculosis was reported to the inspector of a district as pleuro-pneumonia. He (Mr. Hunting) refused to clear him, and followed the beast to the slaughter house where it had been killed. He had nothing to do with tuberculosis. The people of Chelsea ate that meat. That, however, was only one side of the question. In this inspection for tuberculosis as it was carried out, four-fifths of the inspectors knew nothing about the disease or meat and of the remainder nearly all knew too much, with with the result that medical officers of health in many towns condemned an animal if it had only one nodule in its lung. Hence he said that nine-tenths of the inspection, as at present carried out, was an absolute farce, such as the milk inspection. It was a farce when it was not an injustice. And it was not, as a legal measure, necessary. He would take a cautious and moderate man's opinions upon these subjects as, sometimes, he was not included in that classification. (Laughter). Professor M'Fadyean told them the previous day that, so far as part of this subject was concerned, that "the present state of the law or rather the almost entire absence of the law dealing with tuberculosis in cows, was a scandal and reproach to civilisation." That was the moderate way of expressing it. (Hear, hear, and laughter.) What he wished to know was why, if it were so particularly dangerous to leave a cow with a diseased udder in a shed, it was not also dangerous to leave the old waster emitting bacilli? Tuberculosis was extremely common. Saliva and fæces were full of bacilli. The tail whisking about the udder got dirty and the shed was saturated with material containing tubercle bacilli. Gentlemen who believed, and believed very strongly, that inhalation was the common method of conveying tuberculosis, could not get away from the fact that there was great danger from bacilli whether emitted from bowels or lungs. Why legislate for the udder and not legislate for the bacilli disseminated by the saliva? Of course he recognised there were some difficulties in legislation. Professor M'Fadyean said the greatest obstacle in coping with tuberculosis, whether in man or animals, was ignorance of the laity regarding the causes of the disease. He (Mr. Hunting) did not think that was quite correct. His opinion was that the greatest obstacle was the eternal iteration of this ignorance by experts and authorities. And the man who was always prating about the ignorance of the public and about the thirty years it would take to teach them, would never be likely to do much good. All he could do was to afford a handle to the Board of Agriculture for sitting still and drawing their salaries. (Hear, hear, and Laughter). But was not legislation in itself the best educational method they could adopt. Until they got legislation dealing with the cattle plague, with pleuro-pneumonia, and foot-and-mouth disease, did any agriculturist pay attention to them? No. Was the process one of education? No, it was one of a fine of forty shillings or a month's imprisonment.

Mr. W. COOPER: Legislation in respect of the cattle plague was initiated by the men of Aberdeenshire and no one else.

Mr. HUNTING: It is no use contradicting men who know but I have a very different opinion. What happened? A fine of forty shillings or a month was imposed and that educated the public pretty quickly on the subject of cattle plague. They would not be educated on the subject of pleuro-pneumonia even with the stimulus of forty shillings or a month's imprisonment, but when the pedigree men found their pockets were touched, when they discovered that pedigree animals were refused admission to foreign countries, then the Royal Agricultural Society—which chiefly consisted of pedigree men and land

owners—woke up to the fact that something must be done and something was done—the disease was stamped out. It was a matter of personal interest and whenever men saw that their personal interest was likely to be affected they would also see the right way to act. What he proposed to-day was that they should see to the administration of simple measures and their application in a uniform manner, legislation which would do no harm to anybody while securing greater protection than the existing law. A legislation which would include the responsibility of the farmer and breeder. If tuberculosis were included in the Contagious Diseases (Animals) Act notification would be required. That notification would cover not only udder cases but any other symptoms that were shewn by the animal infected. It would catch nearly every animal that was in such a condition that it could do harm to other animals or human beings. It would affect the disease in the hands of the breeder where it started, affect it in the hands of the feeder where it was continued, and it would finally catch the cowkeeper and butcher. At the present time the cowkeeper and the butcher were held solely responsible for all the tuberculosis which reaches them from the breeder and feeder. (Hear, hear.) The cowkeeper kept an animal about a year, the butcher two or three days, while the breeder and feeder who supplied a beast already infected was free from responsibility and simply laughed at the purchaser. Insurance companies were a failure when the butcher had to pay all the money and the other men nothing. Well, the subject of compensation was too ticklish a one for him to enter upon then. When he touched this question he always got into trouble by being told that a veterinary surgeon had nothing to do with compensation. He held a contrary opinion. In conclusion he would simply say that whilst every other country on earth had some legislation against tuberculosis we, in our insular ignorance, had none. (Hear, hear, and applause.)

[Abstract

"THE CHANGES REQUISITE IN EXISTING LEGISLATIVE AND ADMINISTRATIVE MEASURES FOR IMPROVING THE CONDITION OF COWSHEDS, AND ENSURING THE HEALTH AND CLEANLINESS OF MILCH COWS."

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Before venturing suggestions as to legislative changes it is necessary to consider what legal provisions already exist for these purposes. They are :—

1. The Dairies, Cowsheds, and Milkshops Orders, 1885 and 1886.
2. The Contagious Diseases (Animals) Act, 1886, *Sec.* 9 (4) and (6).
3. The Infectious Diseases (Prevention) Act, 1890, *Sec.* 4.
4. The Regulations made under the above Orders.
5. The Tuberculosis Clauses of certain local Acts.

The Dairies, Cowsheds, and Milkshops Order of 1885 (for offences against which the Order of 1886 provides penalties) is made under the Contagious Diseases (Animals) Act, 1878, *Sec.* 34, and (briefly) provides for the registration, sanitary construction and maintenance of dairies and cowsheds, and the making of regulations for their good ordering, and for the inspection of cattle (art. xiii. (a)). It also prohibits the use of milk from a diseased cow "for food of swine or other animals unless and until it has been boiled" (Art. xv. (c)). But the Order generally only applies to the diseases scheduled under the Contagious Diseases (Animals) Acts, of which tuberculosis is not one; and though the Dairies, etc., Order of 1899 extends the 1885 Order so as to prohibit the mixing of tubercular milk with other milk, and its sale or use for human food, it does not apply at all to the regulations for inspection of cattle in dairies, or the use of unboiled tubercular milk as food for other animals. Thus, at the outset, one is met with the *astonishing fact that a sanitary authority has no power to make regulations for the inspection of tubercular cattle in dairies, and no power to prohibit the feeding of animals on tuberculous milk*, although we know that swine are specially susceptible to tuberculosis, and that the great majority of calves that become infected are infected through the milk of tuberculous mothers (Report Royal Com. 1898, par. 14 and 50).

Surely the Dairies, &c., Order of 1899 was unintentionally limited in its application.

The Contagious Diseases (Animals) Act, 1886, *Sec.* 94, gives a local authority's officers right of entry on premises within the authority's district for the purposes of the Dairies, &c., Orders. But, as the Act does not apply to tuberculosis, *the second surprising fact appears, viz., that the officers of a sanitary authority have no legal right of entry into any cowshed in reference to tuberculosis in the cattle therein.*

Outside its own district a sanitary authority has apparently no power to inspect milch cows, either in regard to tuberculosis or any other disease, even though the owner of the cows is registered in its district as a milk-seller, and sells such cows' milk therein. The benefit of registration is thus largely lost, as an enlightened district may be left at the mercy of an apathetic one. Clearly, therefore, statutory powers are required for the inspection of milch cows, in regard to tuberculosis or any other disease, by the officers of any authority within whose district milk from the cows in question is supplied.

The 1886 Act also makes the rural and urban sanitary authorities the local authority in their districts, in place of the previous "county authority," viz., the Justices in Quarter Sessions, of whom, in administrative matters, the County Councils are the successors.

It thus comes about that, although the *County Council* are still the local authority under the Contagious Diseases (Animals) Act, they *have absolutely no powers in regard to dairies and cowsheds, nor in reference to tuberculosis*, because it is not scheduled under that Act. Consequently, the Shropshire County Council, when recently invited to take action in obtaining concerted veterinary inspection of milch cows, and in providing facilities for tuberculin testing, found itself absolutely powerless to do or spend anything for this purpose.

County Councils should certainly receive statutory powers in the directions indicated, and, as in regard to rivers pollution-prevention, analysis of food and drugs, and housing of the working classes, they should possess, in respect of dairies, cowsheds, and milkshops, direct executive functions concurrent with those of the local sanitary authorities.

The Infectious Diseases (Prevention) Act, 1890, *Sec.* 4, gives the Medical Officer of Health powers of inspection of dairies *in his district* and of the animals therein, if there is evidence that any person is suffering from disease attributable to the milk therefrom. Similar inspection of *outside dairies* may be made on a Justice's order.

This measure primarily protects the consumer, but, secondarily, tends to improve the condition of cowsheds and cows. Unfortunately, however, the word "disease" is limited here to "notifiable infectious disease," which does not include tuberculosis.

The latest Regulations under the Dairies, &c., Order, dated March, 1899, when tested by the Royal Commission's structural recommendations as to cowsheds, are apparently satisfactory, though other codes, *e.g.*, that of Manchester, are much more explicit and detailed. In

regard, however, to cubic space requirements, the Model Code does not meet with unqualified approval on all sides. It divides cowsheds into two classes. The first consists of those "the cows from which are habitually grazed on grass land during the greater part of the year, and, when not so grazed, are habitually turned out during a portion of each day"; for these, which may be described as "country cowsheds," nothing whatever is specified about cubic space. For the second class, which includes all other cowsheds, and may be termed the "town cowsheds," 800 cubic feet of air space per cow is suggested as the proper allowance. The omission to *specify* cubic space requirements in rural districts is presumably a consequence of the Royal Commission's finding that physical circumstances vary so much in different rural localities, that it is not practicable to prescribe a uniform minimum; but this hardly explains the absence from the Model Code of any *reference* whatever to cubic space, for the Commissioners recommended "such space per cow . . . as would . . . secure reasonable ventilation without draught." This is an unfortunate difficulty in the Regulations, for it has been truly said that "by far the worst constructed, worst ventilated, and the dirtiest cowsheds are to be found in villages, hamlets, and rural areas." Moreover, as pointed out by Dr. Niven, milch cows in towns are mostly young, are kept for one year only, and are then slaughtered; whereas milch cows in the country are, for breeding purposes, kept very much longer, often under much less favourable cowshed conditions, have a longer time in which to develop tubercle, and, as a matter of fact, suffer from it more frequently, as Manchester and Liverpool statistics have very clearly shown, the actual proportions of infected town and country milks being 13·4 to 5·2.

The Tuberculosis Clauses of 1899 (Manchester, Stockport, Derby, etc.) provide for: (1) Notification of actual suspected tuberculosis of the udder; (2) inspection of milch cows either within or without the district, and sampling of their milk; (3) penalties for selling milk of cows with tuberculous udders, and for failing to isolate such animals; (4) the application, with consent of consent of owners, of the tuberculin test to cows by a veterinary surgeon.

These powers have been used considerably in Manchester and Derby.

According to M'Fadyean (Min. Evid. Royal Com., 1896, par. 1256), "It is exceedingly rare for a cow to be attacked with tuberculosis in the udder first; it is also rare to get a cow that has tuberculosis of the udder and only slight tuberculosis elsewhere. Tuberculosis of the udder is usually found in advanced cases of tuberculosis. Even if all cases of tuberculosis in cattle were allowed to die . . . . only a small percentage of them would ever get tuberculosis of the udder." If this be true, no compensation would be necessary in regard to most cows with tuberculous udders, as they would be suffering from generalised tuberculosis.

Protection of Inspecting Officers.—In any legislation for dealing with tuberculosis, it is most essential that a clause should be inserted similar to sect. 265, Public Health Act, 1875, for the protection of all medical, veterinary or other sanitary officers, from personal liability in respect of anything done *bonâ fide* for the purposes of such legislation.

To summarise briefly:—

I.—General legislation is urgently necessary for the following purposes:—

1. Inasmuch as no such powers already exist in reference to tuberculosis to empower urban and rural sanitary authorities to inspect, in regard to tuberculosis and any other disease, cows and cowsheds, wherever situated, from which milk is supplied to their districts.

2. To endow County Councils with concurrent powers.

3. To amend and extend the provisions of the Dairies, etc., Order of 1885 so as (1) to make applicable to tuberculosis its regulations concerning the inspection of cattle; (2) to prohibit the use of milk from tuberculous udder as food for animals unless first boiled; (3) to provide for a sufficiency of moving air at the heads of milch cows kept in cowsheds.

4. To empower the Board of Agriculture to provide, on specified conditions, for free tuberculin testing of the stock of all assenting owners, and to delegate, where desirable, the administrative details to County Councils and County Borough Councils.

5. The application to the Kingdom generally of powers on the lines of the Tuberculosis Clauses of various local Acts, with the further powers of prohibiting the removal of suspected animals and of applying the tuberculin test.

6. The compulsory slaughter of all reacting animals, as it is impossible, except by an almost impracticable system of espionage, to ensure their isolation and the disuse of their milk.

7. The payment of *full* compensation when the slaughtered animal is found to be *free* from tuberculosis, and of substantial *partial* compensation when the disease is localised, but only in such cases.

8. Penalising the fraudulent use of tuberculin for "fortifying" purposes.

9. Protecting from personal liability sanitary officers acting *bonâ fide*, as per sect. 265 of Public Health Act, 1875.

II.—*Administrative changes* as implied by the legislative proposals just enumerated, and in addition—

1. Reference in the Model Regulations to some cubic space requirements for cowsheds in sparsely populated localities.

2. Periodical veterinary inspection of milch cattle.

3. Dissemination amongst farmers and cowkeepers of information in regard to bovine tuberculosis, and especially in reference to the value of the tuberculin test and the importance of feeding calves on wholesome milk.

Mr. A. ARMITAGE (Nottingham District Butchers' Association) expressed his belief that, in the long run, Dr. Koch in regard to his declaration of the non-transmissability of tuberculosis from the bovine to the human subject, would prove to be right.

Mr. POTTIE (Paisley) also expressed his conviction that Dr. Koch's statement would prove absolutely true—nay that it was already demonstrated to be true.

Mr. F. C. LLOYD, speaking as a chemist and bacteriologist for the British Dairy Farmers' Association, said he was surprised at some of the statements made at that session. For instance, Prof. Nocard said that the milk used for cheese making should be sterilised, little knowing that it was absolutely impossible to make cheese from sterilised milk. His suggestion, if carried out, would destroy every atom of cheese. Prof. Bang would agree with him when he said that the Danes introduced the system of pasteurising not because of tubercle bacilli but in order that their butter might be uniform and of better quality for the English market. He was surprised that not one word had been said at that Congress about the other diseases which milk was said to propagate. Scarlet fever, typhoid fever, and other diseases he had heard ascribed to milk as well as tuberculosis, and with far more evidence adduced in support of the statement. ("No," and a voice "Not germane to the subject.") Yes, it was germane. If they were satisfied that the milk was a source of the spread of tuberculosis and knew also that it had been the source of other diseases, surely it was their duty to tell the public to sterilise and pasteurise that milk not only because of tuberculosis but because of other diseases as well. He thought it was a much easier thing to teach the public to safeguard themselves than to attempt to get rid at once of the danger by too

stringent regulations. He believed that every step should be taken to prevent the spread and entirely eradicate tuberculosis from the herds of the country not simply because of the danger to the public but because it was absolutely unprofitable and destructive to the farmer. Had the veterinary profession been unanimous and said the same thing there would have been no difficulty in teaching the farmer that it was his duty to get rid of this disease. The simplest and best procedure was not to take drastic but reasonable measures, first separating the diseased from the healthy animals and then they would not, as had been said, run the risk of disseminating the tubercle bacilli from wasters. If they attempted to secure the extreme measures for which some of them asked they would raise public opposition and do more harm than good. (Hear, hear).

Mr. J. S. LLOYD (Sheffield) said that as a veterinary inspector he had encountered great difficulty in inducing cowkeepers to ventilate their byres properly. While he was, for eighteen months, veterinary inspector to the Sanitary Committee at Manchester he came across 52 cows with tuberculous udders. Of these 26 were slaughtered. The other 26 were not slaughtered because their owners could not be compelled to kill them. Of them only eight were known to be in Manchester now. The rest had been scattered throughout the length and breadth of the land. He insisted that meat inspection should only be entrusted to duly qualified men, which ordinary sanitary inspectors were not. The Meat Trades' Federation would have less objection to inspection when they knew it was conducted by properly trained and duly qualified men. (Hear, hear.) If this were generally the case he did not think butchers would have much cause to ask for compensation. He joined issue with agriculturists in asking for compensation in respect of tuberculous udders. Their previous standpoint was that compensation should only be required where there was no evidence of disease before death.

Mr. RAMSDEN asked whether the Chairman would put the resolutions proposed by Mr. Bowen Jones, copies of which had been printed and circulated in that room. The CHAIRMAN said the chairmen of sections would decide what resolutions should be put to the general meeting which was to follow. This would not debar any member of the Congress from submitting to the same meeting any resolution he wished to move.

Mr. B. JONES asked whether Sir George Brown would mention to his colleagues, the other chairmen of sections, the fact that his (Mr. Jones') resolutions had been unanimously accepted by that section. (Hear, hear.)

Mr. W. F. ANDERSON (Glasgow) said he had not approved Mr. Jones' resolutions, and he believed others present shared his views.

The proceedings of the Section then terminated.

VETERINARY SOCIETIES.

SOUTHERN COUNTIES VETERINARY MEDICAL SOCIETY.

(*Continued from p. 96*)

THE TREATMENT OF INTESTINAL IMPACTION.

By E. R. HARDING, M.R.C.V.S., Salisbury.

Mr. President and Gentlemen,—When I reluctantly consented to introduce a subject for discussion at this meeting, I told our Secretary that as the time was so short I could not undertake anything in the form of a paper, but should merely make a few remarks on the treatment of intestinal impaction with the object of starting a discussion. My reason for choosing this subject was, not that I have anything original to offer you, but rather the reverse. It is to give you my experience of the treatment advocated in a very able article by Mr. H. Caulton Reeks, F.R.C.V.S., of Spalding, Lincolnshire, which appeared in *The Journal of Comparative Pathology and Therapeutics* for March, 1900.

The disease is a common one to practitioners in agricultural districts, owing mainly to the domestic mismanagement of the farmers' horses. The system which prevails in the district in which I practise seems to be pretty general. The horses have their first meal about five o'clock in the morning. It consists of a small portion of corn, generally soaked maize ; in some cases half maize and oats. With this is mixed a large quantity of either wheat or oat hulls, or cut straw chaff. After they have been feeding on this for an hour and half, they are turned out to drink, then harnessed, and start for work at seven. They are kept at it, with but very few exceptions, without any more food or water, until between three and four in the afternoon. They certainly have a rest about noon, while the men eat their lunch, but they have to stand in their harness mayhap in the hot sun, or cold wind and rain. When they return to the stable they have a similar large meal to the morning one, if anything a little more, without any water, until after they have finished. They are then turned out to the trough, and we can imagine the quantity they drink after eating such a dry meal, and working all day. In a few cases nosebags are provided for them at noon, and on those farms "colic" cases are not so frequent.

The exciting causes, then, may be said to be the long intervals between feeding, and the large amount of indigestible food given them at each meal.

The symptoms of a sub-acute case are those which do not give rise to any alarm on the part of the owner or attendants. The animal looks dull, refuses food, lies down in the natural position, and remains quiet for some little time with the exception, perhaps, of looking round to his flanks. He will then get up and pick a few mouthfuls of straw. After standing some time, pawing occasionally, he will gradually make up his mind to lie down again. There may be little or no tympany, the pulse, temperature and respirations practically normal, but there will be an absence of abdominal sounds, and an examination per rectum will reveal that bowel to be almost empty, while other portions of the intestines will be felt to be full of a mass of dough-like fæces. If relief be not afforded, the symptoms will soon become more alarming. The animal will be up and down constantly, and when down, rolling ; in fact, not still a moment. The tympany becomes much greater, and he breaks out in patches of sweat ; pulse and respirations accelerated. Often times we are too late to watch the sub-acute symptoms, but on our arrival the patient is in a desperate condition ; perspiration literally pouring from him, great tympany, pulse nearly 100, respirations much accelerated, nostrils dilated, an anxious expression, in fact apparently dying.

I should like here to quote a paragraph from Mr. Reeks' article. He says, "I cannot lay too great a stress on the value of taking the indications of the pulse, temperature, and respirations *collectively* in order to avoid error in prognosis. I never look upon a case as approaching dangerous unless I get a full warning from all three." Then he refers to a case in which the animal had been rolling in violent pain before his arrival, but was then standing perfectly quiet with a pulse hammering away at 108. but the temperature was only 101, and respirations 12. The animal recovered.

TREATMENT.

In my younger days this consisted of aloes, and opium or belladonna, with warm water enemas. This was successful to a certain degree, but there was frequently two day's purging. About twelve or fourteen years ago

eserine was introduced, and I have used it ever since, and, with Mr. Reeks, I have nothing to say of it which is not in its favour. But it is his nervous stimulant treatment to which I wish to draw your attention. I must quote from him again. He says, "The bowels, distended beyond a certain point, are retained in a state of tonic cramp in their ineffectual attempts to deal with the enormous masses which they contain, and then we have a torpid, and stationary condition of the bowels to treat."

The treatment he advocates is a large dose of a cerebro-spinal stimulant, and he chooses carbonate of ammonia, and nux vomica. I must admit to being astonished at the dose, viz., 2 oz. ammon. carb. and 1 oz. nux vom. made into four balls, and given at once—that is to a big agricultural horse, with well marked symptoms. This is followed by a draught consisting of 2 oz. of spts. tereb. and spts. ammon. arom. and 1 pint of ol. lini. He repeats the ammon. carb. substituting pulv. zingib for nux vomica in three to four, five or six hours if the animal is still in pain, and in the meantime gives frequent hot water enemas. Should the case tend to become protracted, and if the pulse is strong and not too frequent he injects hypodermically eserine sulph. 1 gr., and if on the next visit the bowels have not acted he gives eserine sulph. 2 grs. still continuing the ammon. carb.

I have adopted this treatment with a little modification with great success. The patients recover much more quickly, and without the nausea and purging occasioned by aloes. I at once inject hypodermically 2 grs. of eserine, and give the dose of ammonia and nux vomica in three balls, and leave the draught to be given in two hours. In many cases this has effected a cure, but if there is no improvement in six or eight hours I repeat the ammonia and sometimes the eserine. If the horse is very tympanitic I puncture the bowel with the trochar and canula before injecting the eserine. In several cases I had in which the first dose of eserine did not give the desired result, I have repeated the 2 grs. in two hours with excellent results. I never give aloes nor opium now.

I thank you for your patient listening, and I hope you will forgive my brevity. I had not seen a record of the experience of any other veterinary surgeon on this subject, and thought that this would be a favourable opportunity of recording them.

Discussion.

The President said he was sure they had all listened with a considerable amount of interest and pleasure to Mr. Harding's comprehensive account of the treatment adopted. There was no doubt that the mismanagement to which he had referred—the absurdity of the feeding, the indigestible food, and the long intervals—were the exciting cause of the complaint in that particular part of the country. With regard to the treatment, he did not quite follow what would be the difference if the carbonate of ammonia and nux vomica were given in one draught instead of in four balls. At the present time he (Mr. Hulford) had a case of what he considered intestinal impaction which was troubling him considerably. He had had the horse under his treatment for four days, and it had passed nothing. He would like to know if Mr. Harding could give them any diagnostic signs of this complaint irrespective of the non-passing of fæces and the disturbance which they generally noticed. The horse to which he referred was acting in a most extraordinary manner. He found the animal extremely amenable to the effects of a hypodermic injection of morphia and atropine, the effects of which lasted for several hours. Then the horse began to show signs of great uneasiness, and knelt on his knees, remaining in that position for three or four minutes continuously, apparently endeavouring to stretch himself. He had watched the operation repeatedly, and each time the horse did exactly the same thing in exactly the same manner. As he had observed, the animal appeared very amenable to injections of morphia and atropine, and the symptoms temporarily ceasing he began to feed; but he could get no action of the bowels. He had given him copious enemas of warm water, together with oil and turpentine, and also aloetic and oleaginous draught. Apparently the symptoms were not in the slightest degree aggravated from what they were two or three days ago, but he could not get the slightest amount of fæces to pass. He gave the horse an injection hypodermically that morning of physostigmin, which caused excessive pain, the animal suffering untold agonies, immediately after which he passed a very slight amount of liquid fæces, but he was inclined to think that that was due to the enema rather than to the injection. He would like to ask Mr. Harding whether he had noticed any symptoms by which, in the earlier stages, one could say that it was impaction of the bowels in contradistinction to twist or other bowel affections.

Mr. Spencer said he could endorse all Mr. Harding had said as to the feeding of cart horses, for he was a farmer in Lincolnshire himself fifteen years, and he never saw a nosebag used at all. They suffered terribly from this complaint; they called it colic. He had found great benefit in the use of linseed oil cake, giving two pounds per horse per day in a well-stirred porridge. In the treatment of the animals, when they had cases of this disease, they always used a good deal of sulphuric ether, anti-spasmodic draughts, 1½oz. or 2oz. Sometimes they put a dram of aloes in each draught, but they very rarely used opium. He had noticed that rubbing the abdomen was very beneficial when it was greatly distended, as it would be from the bulk of food which they had. In the winter, if the animal was very bad, they generally used mustard, but in summer time hot rugs. He had tried physostigmin, and, like the late Captain Russell, of Grantham, he had very bad results in the early period, and in nearly every case he got rupture. He presumed they gave too much. Since then he had used it again, and he confessed he had not had a case of rupture.

Mr. Pack said he was glad Mr. Harding had mentioned Mr. Caulton Reeks' treatment, because he (Mr. Pack) was a pupil with his father, and if he was any bolder than his father he was a very bold man indeed with regard to doses of medicine. In the Eastern Counties they went in for everything big—big horses, cattle, poultry, and doses of medicine. They never thought of giving much less than eight drams of aloes to a cart horse when he was in Lincolnshire. With regard to the cause of the complaint, it was mostly mismanagement. The stomach full of coarse food, and water *ad lib.* afterwards, must tend to bring on colic. With regard to symptoms, acute and sub-acute, he thought some cases of impaction commenced in an acute manner and gradually settled down. Their President asked as to the symptoms of impaction in its early stages, and twist. He did not think they ever got the acute symptoms in impaction that they did in twist. They did not get continuous pain—there was always some lull, and the horse got an anxious expression in twist which they did not get in impaction. He thought impaction in nine cases out of ten took place in the colon. If one got one's arm far enough in one found the large bowels in such a state that they could be kneaded like dough. He thought a full dose of aloes was a sheet anchor in these cases. He thought everybody used eserine in some doses or other. He seldom found it necessary to give over sixty minims. He thought it made all the difference where they injected it. He had given a full dose under the skin, and had not noticed any effect, but with the same dose injected into the trachea or the jugular vein they began to squirm within a few minutes, and the whole thing was over in less time than they usually got symptoms when it was injected under the skin. He had never known when it would be safe to re-

peat eserine. He had done it in an hour without bad results. He thought it was safe to repeat it when all the usual symptoms attending it had passed off, if they did not get the full benefit. Sometimes they got a half action, and no real relief. A long time ago Mr. Reeks' father told him the doses he gave were two full drams of the solution injected straight into the jugular. He had nearly killed a horse with one dram and he did not want to use two. He never knew a horse stand much more than 60 minims. With regard to carbonate of ammonia, Mr. Harding told them that he repeated the dose in two hours, but he wanted to know whether the results were all right.

Mr. HARDING: The horse got better in five or six hours.

Mr. PACK, resuming, said the President had remarked that he did not see why the carb. of ammonia and the nux vomica could not be given in one draught. When he (Mr. Pack) was at College he remembered Professor Tuson told them that the moment they put cold water to ammon. carb. it lost its stimulant properties.

Mr. CAUDWELL said, another reason—in addition to that mentioned by their Secretary—against giving the carb. of ammonia and nux vomica in a draught was the effect upon the mucous membrane. With regard to physostigmin, its action was very uncertain when given under the skin. As to its repetition, he remembered repeating a dose in one case, and the horse died within a few minutes. He made a post-mortem examination and found a huge calculus, like a clinker from a furnace. Mr. Harding told them that the usual cause of impaction in the cases with which he had to deal was the indigestible food and long fasting. He would like to ask whether he advised his clients to use nosebags, or was that going too much against their personal interests?

Mr. J. KING thanked Mr. Harding for his interesting remarks on a subject upon which everyone knew something. In the cases which had come under his notice he could not say anything about mismanagement in the stable. He had not much to do with farm horses, but in the cases which he had there was generally good management. The treatment which had been so well brought before them by Mr. Harding seemed to be the fashionable one, but he was old-fashioned, and would prefer sticking to the old aloes, injections of warm water, purgatives, linseed oil, nux vomica, carbonate of ammonia, etc. "Physostigmine," in his experience, had been rather disappointing. Eserine was valuable, no doubt, but he, like Mr. Pack, had been rather puzzled as to how soon it should be repeated if the first injection did not come up to expectation.

Mr. SIMPSON said to one who did not live as near Lincolnshire as their friend who had addressed them, the domestic mismanagement of the farm horses in the locality of his friend, whose experiences he repeated, was very astonishing. As Mr. Caudwell had put it, he did not know whether the members of the veterinary profession in that part had done their best to convince the farmers of the folly of the dietary which they felt disposed to adhere to or not, but it was very rarely the case that a farmer who had lost a few animals from mismanagement could not be convinced of the folly of his ways, provided it was put before him by the veterinary surgeon. He must confess to a certain amount of disappointment that Mr. Harding had been too busy to deal more extensively with the subject, because it was very evident, from the way he had put this matter before them, that it was not from want of capability, but only from the want of time to do it. He had hoped, otherwise, that he would have dealt with the surgical side of the question, and not have confined himself exclusively to impaction by food only. Many and varied were the treatments for the intestinal troubles brought about by the eating of indigestible food. In those cases where there was not very acute pain, where there was not a very high pulse such as had been referred to, he was content to call indigestion, and he was bound to say that the heroic treatment which he saw in *The Journal of Comparative Pathology* some time ago he did not desire to substitute for his own. The administration of two ounces of carb. of ammonia only proved that what they claimed for that drug was pretty accurate, viz., that it was very simple. With regard to the administration of eserine, and the bad results which were said to arise, viz., rupture of the bowel, he did not think it should be used indiscriminately. He thought under no circumstances should it be administered when the bowels were greatly distended with gas. Before its administration doses of turpentine should be used, because there was no better thing to prevent the fermentation of food. He thought that the ruptures of the colon which were occasionally met with in connection with the administration of eserine were due to what he might say was the indiscriminate use of it when the bowels were unable to contract upon the fæces in response to this dose. He had heard that the rubbing of the abdomen with a broom or fork handle, or any hard rubbing, in cases where there was a large amount of afflatus in the bowel, was very beneficial. It was attributed by one of his friends to the fact that there was a disinclination to use the abdominal muscles, but the horse shrank from the pressure of the broom handle, or whatever it was, and the pressure of the abdominal muscles upon the intestines assisted greatly in relieving the bowel of the gas that might be contained within it. With reference to the use of pilocarpin he thought they ought to use it in all cases with eserine. Whether it had the effect upon the mucous membrane of the bowel, asserted by some, that it had upon the membrane he could not say, but if so unquestionably they had in it one of the finest softeners they could have. If eserine was given pilocarpin should be given with it. That the effects of eserine were unreliable he fully admitted, but he maintained that the effects of pilocarpin were always the same. With regard to the doses of eserine, he was not prepared to say what was the strength of the solution sent out by their respective druggists. They put upon the bottle the number of minims. He did know the dose contained in a dram of the solution, but he should think, in all probability as they gave several doses, they might take it that it did not exceed a grain in a dram, because that was the average dose he selected for administration under the skin. A dram in one of the little pellets, dissolved in a little distilled water, and there they had the solution ready for injection. He had referred to a treatment he had no fault to find with. He had a fair amount of success, as good as most practitioners, and he was inclined to stick to the bridge that had carried him over safely. It was true that in his part of the country he did not come across the heavy cart horses, nor did he remember so large a number of cases that he was sure Mr. Reeks and Mr. Spencer did. In an ordinary case of indigestion or colic it was impossible to say, until they had watched the case, what was the cause. He would defy anybody to say what it was in nine cases out of ten. In such a case he always gave an ounce and a half of nitric ether, and six drams chlorodyne. If they used the rectified preparation of nitric ether he admitted that it was an expensive draught to repeat frequently, but if that failed to give relief in an hour and a half he resorted to linseed oil. A pony which he had left that day had had a pint of linseed oil. If he failed to get relief with a quart of linseed oil he followed that with a dose of physic. He was not anxious to give frequent doses of medicine. He relied upon the simple anti-spasmodic he had told them of, and secondly, upon a repetition of that dose with oil an hour and a half afterwards. And if he wanted to leave the patient he left half-ounce doses of chloral hydrate, and ordered that to be given in water every two or three

hours. They all liked to learn something, and he did not know that he had attended one of their meetings which he did not leave wiser than when he came. And if he occasionally came across cases of colic or indigestion in farm horses where he suspected mismanagement to be the cause he might be disposed to try, in a somewhat modified form, the treatment brought before them by Mr. Harding that day. He would like to join Mr. King in his expression of thanks to Mr. Harding for the paper which he had read to them that day.

The PRESIDENT said he did not think, given the ordinary means of diagnosis, one could make much mistake in impaction and twist. But he wondered whether, in the first symptoms of impaction, there was anything which anyone had noticed, which might possibly lead them to adopt a milder treatment than the heroic one which Mr. Harding had suggested. If it happened to be any other intestinal obstruction, and not a case of impaction, possibly the treatment would accelerate the symptoms.

Mr. HARDING said he thought a great deal must depend upon the class of horse one had to treat, and the time of the year. In South Wilts they got a great many of these cases at the beginning of the winter when the horses come in from grass on to a dry food. An examination of the rectum must always be made, and in nearly all cases the rectum would be found to be empty and the bowels filled with a quantity of dough-like fæces. In impaction they did not get the agonised expression they did in twist, nor the constant pain. He had never injected eserine in the trachea, but always under the skin, and ever since the tubes containing eserine were sent out by the druggists he had used them. He had always found it effectual if given with carbonate of ammonia. With regard to the repetition of eserine he did not think he had had a case of rupture of the bowel since he had used eserine and carbonate of ammonia. He certainly gave the carbonate first, and he had repeated in two hours with excellent results. When the horse was very tympanitic he did not think it wise to give eserine without puncturing the bowel first. He had never used pilocarpin but he thought he must use it after Mr. Simpson's eulogy of it. He always advised the use of nose-bags. Since he had adopted this treatment the horses got better much more quickly. It used to be two or three days, but now he seldom had a case last more than 36 hours.

Mr. KING proposed a vote of thanks to the Chairman for presiding, and Mr. Spencer seconded the motion, which was carried unanimously.

THE NEXT MEETING.

Mr. SIMPSON proposed that the next meeting of the Association be held at Southampton.

Mr. KING seconded, and the motion was agreed to.

The meeting then terminated, and before separating the members dined together at the hotel.

CRUELTY CASE AT CHELMSFORD.

VETERINARY SURGEON FINED.

At Chelmsford Borough Sessions on Friday, August 2nd, before the Mayor (Councillor F. A. Wells) and other Justices, Charles Edward Whisken, M.R.C.V.S., of Chelmsford, was summoned for causing a horse to be ill-treated at Chelmsford between July 5th and 12th.

Mr. F. H. Colam, barrister, prosecuted on behalf of the R.S.P.C.A., and stated that the defendant was requested by Mr. White to examine his pony, it having been kicked in the leg very severely while in the stable. Defendant ascertained the animal's leg was fractured, and he instructed the owner to turn it out in a field to find its own food. On July 15th it was seen by Inspector Robinson wandering about the King's Head Meadow, trying to find its own living. The pony was practically moving on three legs only, the fourth being off the ground and swinging every time the animal moved. The injury caused a great deal of suffering.

Inspector Robinson, R.S.P.C.A., corroborated, and added that he saw the defendant, who admitted that he ordered White to turn the animal out in the field. Defendant also stated that its leg was broken, and soon afterwards had it killed.

Police-Sergt. Coppin said that, as the animal moved he could hear a noise as of bones grating together.

Inspector Lunniss also corroborated.

Mr. J. D. Norman, M.R.C.V.S., High Street, Chelmsford, deposed to examining the animal and discovering that the ulna of the near fore leg was fractured. This was apparent to any one, and it was decidedly not the right thing to turn out an animal in that condition into a field to procure its own food, and would cause unnecessary suffering. In addition to the fracture there was evidence of disease. The pony ought to have been shot.

Mr. S. Vincent, M.R.C.V.S., of Brentwood, deposed that the bones produced were examined closely by him on July 26th. There was evidence of a severe fracture of the ulna. Every movement of the animal in getting its food off the field would cause great pain. He agreed it was most improper to turn the horse out in the way it was done.

Defendant stated that in the stable there was no means of swinging the pony, and he considered it far better to turn it out in the field than let it remain in a hot stable. —The Bench decided to convict.

Henry White, dealer, Chelmsford, the owner of the animal, was then summoned for causing the pony to be ill-treated. Defendant said that what he did was in ignorance, and on Mr. Whisken's advice.

Mr. Colam said the case was not so bad against this defendant as against Whisken, but there must be a certain amount of responsibility resting upon him. The only reason White allowed the animal to be subjected to this suffering was that he was expecting a foal to be bred from it.

Evidence was given by Inspector Robinson, who said that anyone without any technical knowledge could see the animal was in great pain.

Whisken was fined 40s. and 25s. costs, or three weeks' imprisonment. Fourteen days was allowed for payment. White was fined 20s. and 19s. costs, or 14 days' imprisonment.—*Ipswich Evening Star.*

[No such name as Whisken appears on the Register of Veterinary Surgeons.—ED.]

The Bournemouth Authorities on the Congress.

Alderman Hirons, Dr. Nunn (Medical Officer of Health), and Mr. J. T. King (Veterinary Surgeon and Inspector), represented the Bournemouth Corporation at the recent British Congress on Tuberculosis.

At a meeting of the Town Council held on the 1st. inst., in response to a suggestion by Councillor Mate, Alderman Hirons gave a resumé of the proceedings at the Congress. Commenting on the assertion that the disease was not communicable to human beings by animals, he said the danger was that this belief might lead to laxity on the part of municipal authorities in their endeavour to secure pure meat and pure milk for the community, and he ventured to hope that this would not prove the case in Bournemouth. (Hear, hear.)

The Pasteur Institute in India.

The Pasteur Institute at Kasauli has now been opened for a year. During that period 321 patients have been treated, including 96 from the British Army and 50 European civilians. Not a single failure has occurred among the Europeans, but two natives died. Both of the latter had been badly bitten and came too late to be saved. There are 30 patients at present under treatment.

The complete success of the Institute, which is under the charge of Major Semple, of the Army Medical Service, means a great saving to the Government, as soldiers need no longer be sent to Paris for treatment. It is hoped that funds will be provided to make possible the preparation of anti-toxins for enteric, snakebite, and tetanus.—*The Times.*

ARMY VETERINARY DEPARTMENT.

We regret to hear of the death of Veterinary-Captain H. Turnbull from abscess of the liver at Jhansi, India, on August 10th, 1901, at the age of 36.

Captain Turnbull graduated from the London Veterinary College on December 16th, 1890, and entered the Army on 10th June, 1891, and was promoted Vet.-Capt. June 10th, 1901. He was unmarried.

CORRESPONDENCE.

MECHANICAL FORCE IN PARTURITION.

Sir,

I note an article in *The Veterinary Record*, August 3rd, 1901, taken from a weekly periodical, *Farm and Home*, and written under the *nom de plume* "Pateley Bridge." It is headed "Mechanical Force in Parturition." An attack therein is made upon the evidence I gave at a case in which a veterinary surgeon was fined for undue violence in delivering a mare from her foal. This writer, "Pateley Bridge," cannot comprehend where I have passed my time. For his edification—undoubtedly this will meet his eyes—I will assure him my time has been for a great number of years passed in the exhilarating and salubrious clime of Devonshire, practising my profession as veterinary surgeon. I have attended a number of parturition cases, seen all sorts of presentations, traversed a great portion of South Devon in my practice, heard of all sorts of remedies and means applied in the various conditions and ailments of our patients, and I must repeat again I have never heard of the means adopted as in this instance by a veterinary surgeon in my life. When I made the statement complained of by "Pateley Bridge," I spoke of what my knowledge was as to other veterinary surgeons' usages in cases of this sort It is quite obvious hearing in your daily avocation of methods, and reading of some means which have been adopted in times long ago and mentioned by a writer named Rainard, which I take is copied from an antiquated work, is entirely a different matter.

In conclusion, it is pleasing, however, to note that "Pateley Bridge," whom I would assert is a veterinary surgeon, condemns horse traction for parturition cases.—Yours, etc.,

ALBERT MARSHALL, M.R.C.V.S.

FRESH AIR AND TUBERCULOSIS.

Sir,

A leader in Israel once formulated the dictum, *Sanitas sanitatum omnia sanitas*, and it is a safer maxim than the despairing cry of satiated pleasures uttered by another eminent Israelite who substituted V for S, and which is so forcibly brought to mind by the state of modern bacteriology. Yet as "Old Obadiah" urges, let us not be over hasty in jumping to conclusions, especially on the subject of fresh air, for there is no part of the world so well fitted for fresh air treatment as the Antipodes, and many men, like myself, have to be grateful for the fact, yet tuberculosis is increasing both in humans and bovines. Some decades ago it was unknown among the Aborigines, but alcohol and consumptive missionaries of civilisation working side by side have caused it to be well established in humans, and infected importations have given it a fair footing in bovines unassisted by alcohol. Possibly the structural differences in the two forms of bacilli are due to the teetotal character of the one and the bibulous habits of the other, *of* the highly coloured and globular nasal organ of the alcoholic with the sharp ferrety organ of the abstaining descendants of simian ancestry. So that at least in that part of the world open air treatment is not all-sufficient, and it is to be feared that the South-West of England does not show a clean bill of health as regards animal tuberculosis although in many districts the winter housing of cattle is not practised, and where practised is of short duration; neither are the Channel Islands free from the disease though climatic and other conditions are those best suited for open-air treatment.

As has been shewn by experiment the dilution of the dose seemed to lower the risk, as in the case of mixed milk, and the diluting medium may be air instead, but still there is the risk of infection, and even if the human element is eliminated it is a matter of national economy that the risk should be reduced to the lowest possible limit. And while freely admitting the advantage of fresh air as a prophylactic we must not neglect other aids even though they may appear to be but weak reeds, and above all we must try by all means to rouse stock-owners from the lethargy which is as destructive as tuberculosis and even more prevalent.

THE DOCTOR SAHIB.

A COUNSEL OF CAUTION.

Sir,

What a very old Obadiah it will be by the time it has waited until proof is forthcoming that bovine tuberculosis is communicable to man.

Meanwhile I wonder whether if he ever gets "dry" again he will be willing to drink milk from a tuberculous udder if, instead of informing him that he is also "dry," the young Obadiah produces some (assuming, of course, that he is ever willing to drink milk) and if not, why not?

Speaking as a young Obadiah I'd rather produce the said tuberculous milk to assuage the old chap's thirst and continue "dry" myself than "drink from the poisoned bowl."

I do not profess to be able to judge as to upon which occasion Koch was clothed and in his right mind, but in common with a few other unthinking mortals I was quite willing to bow the knee to Baal, if by so doing I could lessen the risk of contracting this terrible disease—of course if "Old Obadiah" says so I was a fool, but I think I'd rather be a fool than dead. I'm inclined to agree with the ideas of the old gentleman who raised his hat as he passed the statue of Achilles in the Park, and when a friend evinced surprise observed "You never know." That is why I bowed my knee to Baal.

Dear poor "Old Obadiah" there may be something in Koch's first idea after all, and I'd rather be one of those who (if the proof you speak of is ever given) will say "I have always thought so and have endeavoured to prevent the risk" than one of those who will say—if they say at all, which is doubtful—"Fancy that now! Who'd have thought it!" I wonder if the public would really think more of us, as you say it would, if we do all "greatly dare and think for ourselves" with thoughts which agree with yours on this subject.

Personally I'd sooner "arrive at the goal of truth" a little after you with my reputation damaged by being over careful than with you to find we had not been careful enough.

"YOUNG OBADIAH."

COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED.—Lt. Col. Nunn. Messrs. A. Marshall, E. White Wallis, W. Miller. "The Doctor Sahib," "Young Obadiah," "Country Vet." "Tyro." *Jrnl. Comp. Med. & Vety. Arch* (Phila., Aug.) *The Farriers' Jrnl., American Vety. Review, Report of British S. Africa Company.*